TREATMENT OF PERFORATIVE PERITONITIS.*

(GENERAL FREE SUPPURATIVE)

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THERE are no stomata or stigmata in the peritoneum, the endothelial lining is everywhere continuous. The importance of the peritoneum lies not so much in its great surface (17,182 square inches—nearly the same as the skin) as in its tremendous power of absorption, especially marked in the diaphragmatic and omental areas. Both the lymphatics and the blood vessels absorb fluids and soluble substances, while solid particles (bacteria, etc.) are absorbed almost entirely by the lymphatics. The peritoneal fluid has great bactericidal properties. Foreign bodies are encapsulated by the fibrin.

There are three forms of peritonitis: chemical, mechanical and bacterial. By the first is meant cases apparently without microbes.

As regards etiology, the sources of infection in over 90 per cent. of the cases are the vermiform appendix and the pylorus. An important rôle is played by the Staphylococcus albus,—it appears first and disappears last. Then come in the order of importance: the colon bacillus, streptococcus, pneumococcus, pyocyaneus, typhoid bacillus, gonococcus, S. aureus, etc.

As pointed out by the author in 1896, there is early acceleration of absorption in peritonitis with slowing later on. If we can but tide our patients over this period of accelerated absorption, all will be well. It is probable injections of nuclein, etc., before opening abscesses or infected hollow viscera, will, in the near future enable us to increase the resisting power of the patient.

The term "free" peritonitis should be used for the general, diffuse variety, and "circumscribed" for the encapsulated form regardless of size.

A typical case has pain at the onset, with nausea, tenderness,

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fever, Hippocratic facies, abdominal rigidity, vomiting and symptoms of collapse. The last is always a late, never an initial symptom.

There is probably no disease, not excepting diphtheria since antitoxin has been discovered, in which changes in treatment have reduced the mortality percentage so noticeably as the modern treatment of general septic peritonitis.

The importance of the Fowler position both pre- and postoperative is underestimated. The patient should be placed in this position as soon as the diagnosis is made and kept so until convalescence is well advanced.

The relief of pus tension is the first surgical step toward retarding absorption in all acute infections. Reduction of tension must be initial and the absence of pressure continuous—these are accomplished by drainage. The entire technic of these operations for peritonitis must be accomplished in a very few minutes, *i.e.*, get in quick, get out quicker.

The proper method of administering proctoclysis (Murphy) depends on close attention to details. The retention of fluid in the colon depends entirely upon the method of administration.

Opium and coal-tar anodynes were never given in the present series of cases either before or after operation.

Ileus is a frequent and often dangerous and very annoying symptom. In the 51 cases referred to there were 6 of postoperative ileus. Of the 51 cases operated on, two were gastric perforations, 1 duodenal, 5 typhoid and 43 appendiceal. The 16th and 46th cases died; the first from a double pneumonia on the 6th day after operation; the last from a mechanic ileus.

The severity of these cases is shown by the fact that 7 had to be re-operated for circumscribed accumulations of pus in various parts of the abdomen, which with the 6 of postoperative ileus makes a total of 25.7 per cent. of cases requiring a second operation.

There were no fecal fistulæ. The time elapsing between the perforation and the operation varied considerably. In the duodenal case it was 8 hours; in the gastric cases it was 8 and 14 hours respectively. The time of perforation in the appendiceal cases was based on the sudden increase in pain, enlargement of inflammatory zone, nausea and vomiting, superposed on the already existing symptoms. On this basis a period of 40 hours

was not exceeded from the time of operation while many of them had suffered from the appendicitis for 3, 4 up to 7 days. The earliest operation was three hours after the perforation symptoms, the latest 40 hours, with an average of 22 to 30 hours.

Much of the credit for the good results is due to the family physician, as early diagnosis and early intervention are indispensable to success.

There were no deaths in the series of 51 cases from the peritonitis *per se*. When the plan of treatment outlined was first instituted the recoveries were believed to be coincidences. The number is now so large, however, and the results so uniform, it must be concluded they are legitimate sequellæ of the treatment. The results cannot be attributed to a change in the virulence of the infection, nor to any change in the patient's resistance of the individual or local immunity.

Based on the facts cited in the paper, it is believed the results in the future in these cases of general, diffuse, free peritonitis can and must be uniformly good.

This estimate involves the assumption that the medical profession will make early diagnosis, will insist on early intervention, will limit its surgical procedures to the least possible handling and trauma consistent with closure of the opening and relief of pus tension, will limit the duration of anæsthesia and the amount of the anæsthetic, will shorten the actual time of operation, will insure the continued absence of pus tension, will eliminate the sepsis already in the blood, restore the blood pressure and will inhibit absorption by position.

None of the above can be considered individually as a life saver, but each plays an important rôle in securing the present good results.